Transcript of
Allowable Ex Parte Briefing

12/11/2019

DEC & DEP Applications for Approval of Proposed
Electric Transportation Pilot
2018-321-E, 2018-322-E

COPY

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Allowable Ex Parte Briefing 2018-321-E, 2018-322-E
DEC & DEP Applications for Approval of Proposed Electric Transportation Pilot and An Accounting Order to Defer Capital and Operating Expenses

TRANSCRIPT OF ALLOWABLE PROCEEDINGS EX PARTE BRIEFING

HEARING BEFORE: Commissioner Florence P. Belser; Commissioner Thomas J. "Tom" Ervin; Commissioner Swain E. Whitfield; Commissioner G. O'Neal Hamilton

ADVISOR TO COMMISSION: B. Randall Dong, General Counsel

STAFF: William O. Richardson, Technical Advisory Staff; Douglas K. Pratt, Technical Advisory Staff; Melissa Purvis, Livestream Technician; Jackie Thomas, Information Technology Staff

APPEARANCES

Lang Reynolds, Director, representing and presenting for Electric Transportation for Duke Energy

Phil Jones, Executive Director, representing and presenting for Alliance for Transportation Electrification

Jeffrey M. Nelson, Esq., representing the South Carolina Office of Regulatory Staff

Sam Wellborn, Esq., representing Duke Energy Carolinas, LLC and Duke Energy Progress, LLC

COURT REPORTER: Julie C. Taradash

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Please note the following inclusions/attachments to the record:

PowerPoint Presentation Slides (PDF) re: "South Carolina Electric Transportation Pilot"; "Electric Vehicle Cost-Benefit Analysis"

PROCEEDINGS

COMMISSIONER BELSER: Please be seated. Good afternoon. Welcome to this afternoon's allowable ex parte briefing. This afternoon's briefing has been requested by Duke Energy Carolinas, LLC, and Duke Energy Progress, LLC. This briefing has been scheduled and noticed for Wednesday, December 11th, at 2 p.m., in the Commission's hearing room, and this briefing is being streamed -- livestreamed on the Internet.

The subject of today's briefing is electric transportation, and the dockets noticed as potentially having issues addressed in this ex parte briefing are Docket 2018-321-E, Application of Duke Energy Carolinas, LLC, for Approval of Proposed Electric Transportation Pilot and An Accounting Order to Defer Capital and Operating Expenses; and Docket Number 2018-322-E, Application of Duke Energy Progress, LLC, for Approval of Proposed Electric Transportation Pilot and An Accounting Order to Defer Capital and Operating Expenses.

Mr. Dong, do you have anything to add?

MR. DONG: I -- I don't.
COMMISSIONER BELSER: Thank you. We'll now take appearances.
MR. WELLBORN: Commissioner, for the companies, I am Sam Wellborn of law firm Robinson Gray Stepp & Laffitte.
COMMISSIONER BELSER: Thank you, Mr. Wellborn. And for the third-party neutral?
MR. NELSON: Good afternoon, Commissioners. Jeff Nelson on behalf of ORS, as the ORS executive director's designated representative here today.
COMMISSIONER BELSER: Thank you, Mr. Nelson. Do you have some instructions regarding today's briefing?
MR. NELSON: I certainly do, Commissioner Belser.
COMMISSIONER BELSER: Thank you.
MR. NELSON: Briefly -- a lot of you have probably been through these already today. I'm Jeff Nelson, Chief Legal Officer for the Office of Regulatory Staff. I am here today as the designee of the Executive Director to oversee this allowable ex parte presented by Duke Energy Carolinas and Duke Energy

Progress.

As the ORS representative, it's my duty to certify the record of this proceeding to the chief clerk, Ms. Jocelyn Boyd, within 72 hours of the conclusion of the hearing today. This is in accordance with the provisions of Section 58-3-260(C). I am here as an observer. I'm not here as a referee or to dictate how the hearing is to be conducted. We just observe and then either certify or don't certify this hearing as to whether or not it was conducted in accordance with the statute.

The notice topic for this, as Commissioner Belser's already stated, is electric transportation; therefore, I ask that any comments -- anything that's presented by anybody here today continue just to focus on that sole subject of electric transportation. Under the provision of 58-3-260(C), Commissioners and Commission staff are prohibited from requesting or giving any commitment, predetermination, or prediction. And, in short, the presenters are prevented from asking the Commission to make a decision

on anything. Other than that, we're pretty much open to whatever you want to present.

I would ask that, also, if you can to try and refrain from referencing any documents that are not included in the presentation today because, if so, we will need to be provided with a copy of that to -- to make the filing.

Finally, everybody that is here should've picked up a form and signed in when you came in today. Please make sure that you read and sign that form and turn it back in before you leave today.

Thank you, Commissioner Belser.

COMMISSIONER BELSER: Thank you, Mr. Nelson. Mr. Wellborn, we'll turn it over to you.

MR. WELLBORN: Thank you, Commissioner. Thank you, Mr. Nelson, for that. And good afternoon, Commissioners and Counsel for the Commission. For -- thank you for making time for this this afternoon, and I hope that you find it informative and useful.

As I said, I'm Sam Wellborn, outside counsel for Duke Energy Carolinas and Duke Energy Progress. As indicated, we will cover

the company's applications and other information related to the electric transportation pilots, and the information will be presented by a panel of Lang Reynolds and Phil Jones. Mr. Reynolds is director of electric transportation for Duke Energy, and, as such, he's responsible for the development and implementation of electric transportation programs across Duke Energy's utility operating companies. Mr. Jones is the executive director of the Alliance for Transportation Electrification, or ATE, which is a non-profit consisting of auto manufacturers, EV infrastructure vendors, trade associations, utilities, and others that serve to promote the accelerated adoption of electric vehicles and EV infrastructure in key states and regions. We appreciate, again, you allowing us to present this information in a panel format, and we've explained to our panel members the importance of not talking over each other so that our court reporter can do her -- do her job ably.

Again, thank you for your time this afternoon, and I'll turn things over to our

panel.

COMMISSIONER BELSER: Thank you, Mr. Wellborn. Who's first? Mr. Jones?

MR. WELLBORN: Mr. Jones.

MR. JONES: I think I'm the designated lead-off hitter, Commissioner. So I'll try to keep this short, to five to eight minutes, and then turn it over to Mr. Reynolds who really is the expert on this.

It's good to be here in Columbia, South Carolina. I see some of my former colleagues on the bench, and it's good to be here. I was here for your stakeholder workshop in January of this year and participated in that and found that to be quiet constructive.

A little bit about me who -- for those of you who don't know me: I am what you call an energy policy wonk, or a geek. I started working on energy and utility issues for Senator Evans, in the U.S. Senate, in the early '80s. And I've been involved in this field for about 30-plus years.

I also worked on economic development. I represented the State of Ohio. I -- I don't know if you know this, but I lived in Japan

for five years, working for the governor at the time. And so we were recruiting auto companies to the State of Ohio, and we succeeding -- succeeded in attracting Honda. So this is kind of a -- a full circle for me because now I'm working on automobiles again.

In 2005, I became a commissioner, appointed by Governor Greg Warren. I served two terms with the UTC, the Utilities and Transportation Commission. I sat on the bench during multiple rate cases, ratemakings, and all sorts of proceedings.

I rose up in the leadership of NARUC, the National Association of Regulatory Utility Commissioners, and served as its president of NARUC six years ago.

Today, I am passionate about electric vehicles; that's why I'm here. Let me tell you a little bit about ATE, or the Alliance. Two years ago, after I left the Commission, there was a group of people who came to me and said, "Phil, we need some help. We -- there -- there is a need for people to go to the states and talk on a multi-sector collaborative basis about how to promote

accelerated adoption of electric vehicles." So they asked me to take a look at the landscape, and I did. There was a lot of interest in forming a new association that would focus on states.

We have three goals. The first goal is to accelerate adoption of EVs, electric vehicles, and its infrastructure. The second is to promote a strong utility role. The utility role can be varied. We can talk about that today, about what the utility role is, and do it on the regulated side, not on -- not necessarily on the unregulated side. And the third is a little bit technical but important for you today, which I will talk about, which is interoperability. Right now, we have systems that are being built out that are proprietary, that are just -- speak to themselves, but not to others. And we feel that, as we get to scale, the systems need to talk to each other.

We are active in over 25 states. The states, frankly, are leading on issues of energy policy, air quality, and other issues. So we -- we want to engage and support.

So a few thoughts for your review today. First, on the overall market, this is happening: electrification of vehicles. We're on the cusp of a major, major change in -- in transportation in this country. As I said in my opener, I'm -- I'm excited to be in this space after serving as a commissioner for 12 years. I always took an interest, as some of you know, in new technologies, cybersecurity, and other issues.

Just two weeks ago, I was at the Los Angeles Auto Show. This has become the premier show for electric vehicles in North America. At that show, Ford introduced the Mustang. It's all electric. It's called the "Mach-E." Who would've thought, when I grew up in -- in the 1960s and '70s, that Ford, the muscle car, would -- would be all electric? It's all electric now. VW has new models; General Motors. You know, I can just go down the list. And I think Mr. Reynolds will talk about this more.

So it's not just Tesla anymore. When I go around to the states, people say, "Phil, you're just promoting Tesla and a luxury

vehicle."

And I'm saying, "No. There are a lot of new models -- well-priced models." EPRI has a study, and we can put this in the record if ORS and others want it. It comes out every March. The Electric Power Research Institute publishes a study. Today, 44 models are available for sale, and EPRI estimates that, by the end of 2022, 140 will be. So that's my first point, is this is happening.

The second is bus and heavy-duty and medium-duty EVs are becoming a real issue, especially here in South Carolina. Just in your state alone, you have a company called "Proterra." It's an all-electric bus maker. They have sold to transit agencies in communities throughout the state, like Rock Hill, Clemson, Charleston, Greenville. These are early-stage pilots, so you may ask, "What is the utility role?" Well, the utility role is to take it further. These are early-stage pilots. And, just a month ago, in Miami-Dade, in the state to the south of you, the largest order of electric buses was announced by Miami-Dade, 33 electric buses, up to 75

chargers, and they will be implementing this over the next few years. So I think, South Carolina, you do have an economic development role, and this is happening around you.

And I should add that all of these buses that are being adopted here are open standard. They use a common plug called "J-1772," 1-7-7-2.

So what is the role of the utility? Well, the role of the utility is key. It's where the fuel of the future comes from. It's kilowatt-hours. It's electricity. It's not gasoline or diesel. So the utility -- the regulated utilities that you regulate will have to be involved heavily in this discussion. The utility can serve as a catalyst for market transformation. It can help with things like load management. These loads have to be reliably integrated into the grid. You're going to be in charge of rate design: How much is volumetric; how much is demand charge? And then, finally, you can play a role in interoperability.

I was asked to speak about a few other states. Just let me mention three. Maryland

has done a good job here in terms of a best-practice. They had a grid modernization proceeding called "PC 44," and, within that, Chairman Kevin Hughes focused on EVs, and they issued an order in response to a utility filing in January of this year. And Baltimore Gas & Electric, PEPCO, Delmarva, are spending about $45 million over a period of three years on charging infrastructure. It's spread across workplace, residential, public.

Arizona has done a good job. I -- I spent a lot of time in Arizona last year working with the commissioners on developing a policy and then an implantation plan for utilities to file in Arizona. And, already, Tucson Electric has filed, and APS is filing. And Salt River Project is similar to Santee Cooper in your state, one of the biggest publicly-owned utilities in the country. SRP is a member of the Alliance, and they have projected that they will have 350,000 vehicles. Let me say that again: 350,000 EVs in their service territory over the next 15 years, and 90 percent of those are going to be managed charging. So Arizona is -- is doing

good things.

Finally, Missouri, KCP&L, Ameren are there, and the chairman of that commission and the commissioners have been reacting to those trends. They have approved about $25 million in charging infrastructure. That's a combination of workplace, residential, and corridor charging. In my state of Washington -- Washington State in the Northwest, we have a similar amount approved, and we have a UTC policy statement, as well.

So, finally, let me just sum up by saying Duke's -- I can't comment on the specifics of the filing, of course. But I think it is a modest filing when I look at these other states, the amounts, the scope. It is within the range of what those states have already approved. The proposal seeks early learning from pilots. I would urge you not just to work on pilots, but think about scale, what this is going look like in five or ten years. Own and operate is a good model, as well as what we call "make ready." Make ready is when the utility goes beyond the meter and builds out the conduit and wiring to the stub, and

then maybe a non-utility provider takes over. But we argue that own and operate, especially for the more challenging situations, is important.

And -- and, finally, I would just say: Keep South Carolina on the map. Right now, I don't think you're on the map and -- because you have not acted. And I really think, with the automotive industry in South Carolina and throughout the southeast states, both for medium- and heavy-duty, as well as for light-duty, you really have a key role to play. So I would urge you to study up on this situation, and I'd be happy to answer some of your questions, too. So thank you.

COMMISSIONER BELSER: Thank you, Mr. Jones. Mr. Reynolds?

MR. REYNOLDS: Thank you.

COMMISSIONER BELSER: Are you on? There you go.

MR. REYNOLDS: There we go. Can you hear me?

COMMISSIONER BELSER: Yes, sir.

MR. REYNOLDS: Okay. Thank you.

Thanks for having us here today again. And thank you, Mr. -- Mr. Jones, for being

here as well. I share Mr. Jones' passion for this topic, and I'm going to be talking about our proposal. Also some, just things that we're seeing in the market and a little bit about why we're working on this as an initiative here at Duke Energy.

(Slide 5)

So, just to start from the top with some of the application timeline, just so that we -- we level set with how we -- how we got here today.

Last year, in October -- October 10th of last year, we -- we filed the applications that were referenced earlier at -- at the beginning of this meeting.

Following that, towards the end of December, ORS requested a Stakeholder Working Group to be facilitated by ORS, and that met in January of this year -- earlier this year, January 28th.

And that was followed by a follow-up conference call in March and a final Working Group report from ORS.

In response to the comments from the Working Group and -- and other comments, we

filed an amended application in April, and then following that, there were a couple of other filings of -- of comments from other parties, stakeholders, and ORS as well. So I believe August was the last filing that's in this docket with some of our reply comments and -- and other reply comments. So just to start off with the timeline of how we got here today.

(Slide 6)

Next, in terms of what we're seeing in the market, and Phil teed this up very nicely in terms of -- of the growth that we're seeing in the market, the progress we're seeing from a lot of different auto manufacturers across the spectrum of the market.

And, in general, we see a couple of key themes. Batteries are declining in cost, which is reducing the cost of vehicles, and sales are increasing around the world. So around the world and also here in the U.S.

This couple of charts here just shows the decline in battery prices and how we've actually just heard about a further decline in battery prices and an update to this chart,

which should show an 86 percent decline from 2010 until now. So batteries are coming down in price. We expect that trend to continue. And on the right-hand side, that just shows the global auto sales increasing over time.

We're seeing a lot of demand from our customers for this technology, and that's reflected in things like our website traffic. We saw our EV website traffic increase over six times from 2018 to 2019 year to date. So we're seeing quite a bit of -- of interest from our customers and really across a number of different market segments.

(Slide 7)

In terms of the vehicles, the main trend that we're seeing is an expansion from the early market adopters, things like Tesla and -- and the Chevy Bolt and the Nissan LEAF, which were pretty niche vehicles. Now we're seeing vehicles that go further, they cost less, and they also appeal to a broader cross-section of the market. So, on the top line here, we have the Chevy Bolt, the Tesla Model 3, and the Nissan LEAF, all of which are available for under $40,000, and they all

travel further than 200 miles on a charge. So batteries are getting longer ranges. Costs are coming down.

And then we're also seeing, as -- as Mr. Jones mentioned, with these new announcements from automakers, pretty much every week it seems like now, we're seeing some -- some larger vehicles, faster vehicles, and -- and just a real broadening of the market out from -- from a niche market to something that can appeal to a broad cross-section of American consumers.

(Slide 8)

So here at Duke Energy we have embarked on this initiative really as an economic development initiative for our service territories. And here specifically in SC, we see a strong economic development opportunity for the electrification of transportation. And how that translates into an economic development opportunity is really through these four points.

So, first of all, we see strong fuel and maintenance cost savings from electric vehicles. Our residential owners, on average,

save about $1,000 a year from an -- from an electric vehicle, and that comes from the electricity being lower than equivalent gasoline fueling costs, which we've showed here on the right-hand side in this graph of gasoline equivalent -- or gasoline prices versus the electric equivalent on a dollars-per-gallon basis.

So over the last 40 years or so, electricity has been cheaper, and it's also been a more stable fuel source in -- in terms of the price and having lower volatility.

On the air quality side of things, EVs are -- are talked about a lot from an environmental standpoint and this also has an influence on economic development, because we have corridors here in the state like the I-85 corridor, which is kind of perpetually on the border between attainment and non-attainment. And I realize that the Commission is not an environmental regulatory body, but this does connect with economic development because of the ability to recruit industry into areas that are not in attainment. And looking at the attainment values, the NOx emissions from

transportation, which are higher than -- than power-plant emissions in the state right now, have a strong influence of whether we stay in attainment for these areas in the state.

We talked about automakers expanding their EV offerings, and with South Carolina having such a heavy influence or heavy footprint of auto manufacturing, we want to make sure that we -- we stay at the forefront of that manufacturing. And automakers such as Volvo and BMW have both made strong commitments to electrification.

Volvo, in particular, has a target of having all of their vehicles having an electrified component by 2025, which is pretty impressive. BMW, likewise, has -- has made strong commitments to electrification in their product line. So we want to make sure that South Carolina is staying on the forefront there, and we feel that this proposal supports that development.

Lastly, and most importantly, from a utilities standpoint, we believe that increasing adoption of electric vehicles can put downward pressure on rates by increasing

electric system utilization in an efficient manner. That, basically, spreads our fixed costs over a greater number of kilowatt-hours and can put downward pressure on rates over the long-term.

(Slide 9)

We've done some analysis on this -- on this question about downward rate pressure, and we've included that here today with one of our exhibits that was filed with the application. So we had a study performed by MJ Bradley last year in 2018. And it looked at a couple of different scenarios of EV adoption to determine what the impacts on the utility system would look like here in the state of South Carolina.

So the two scenarios are illuminated here. We, basically, looked at a moderate scenario, which is from an EIA forecast. And that, basically, goes out to about five or six percent market share by 2030 and then stays around there for the following 20 years. That's contrasted against another scenario that goes to about 90 percent market share by 2050.

So these are not necessarily forecasts. We're not saying that either one of these is -- is necessarily likely to occur. But we're -- we're trying to assess the impact of these different scenarios on the utility system.

So, looking at these different scenarios, we had a number of conclusions from the report. And this shows the -- the main takeaway that -- that we have from the utility standpoint and looking at the cost and benefits on the utility system.

(Slide 10)

So we have the benefits in terms of the net revenue. That's the blue bars there on the left-hand side of each year. And on the right-hand side are the costs in terms of generation, transmission, and distribution.

And, basically, the takeaway from this part of the analysis is that there's net revenue provided to the system by EV charging in excess of the cost to serve that load. And to take a concrete data point, just looking at the 2030 time frame, the net revenue increases from $18 million a year to $89 million a year. So there's a strong increase in that net

revenue benefit by going from the low adoption scenario to the high adoption scenario. So, in -- in plain terms, what this analysis shows is that increasing EV adoption can benefit the utility system by providing incremental net revenue.

(Slide 11)

So moving on to our pilot -- our pilot proposals -- our proposal as filed. I'm going to go through each component of it, but just to start with the overall goal. I was just talking about the electric system utilization, and that's a large goal of the pilot, is to understand how these EVs are -- are coming onto the system and the -- the potential customer benefits from increasing electric system utilization.

We also want to gather more data around the economic benefits and also the environmental benefits and try to use that data to create scalable programs in the future.

So, in terms of the -- the pilot itself, we have four different programs within the pilot, and I'm going to go through each of

those programs specifically. But, just to start off with the high-level overview, we looked at electric transportation programs around the country, and we attempted to take best practices from -- from programs that we saw elsewhere, and also taking input from our customers and other stakeholders to develop programs that we felt would have the highest impact, gather the -- the most data that we could, and provide those benefits to a broad cross-section of customers.

(Slide 12)

So the four programs were a -- or are: a Residential EV Charging Program, the EV School Bus Program, the EV Transit Bus Program, and the Fast Charging Program.

So these all target specific technologies and -- and specific customer groups, but also give us a portfolio of programs, which address different segments of the market and different types of electric vehicles.

(Slide 13)

The Residential EV Charging Program: We proposed that with a 400 customer limit, and it's a rebate structure, which has a $500

rebate and then a quarterly participation payments which adds up to a total, potentially, of a $1,000 over the three years of the program. And I should add that all of these programs were proposed with a three-year timeline in order to provide a -- you know, a specific timeline over which to implement the programs, and also give a -- a timeline for -- for future analysis of the programs and -- and -- and following programs after the pilot.

(Slide 13)

Within this program, the customer would have a choice of electric vehicle chargers to install. That acronym, EVSE, just stands for electric vehicle supply equipment. So the customer would have the choice of EVSE to install. And over the first year of the pilot, we would gather data to provide a baseline to compare against for the next two years.

Over the next two -- two years, we would perform experimental load management events and use that data to determine customer ability -- the customer's ability to participate in that load management and -- and

remain in good standing in the program and receive those quarterly payments as an incentive to remain in the program.

On the right-hand side there, that's just a graph showing, from the analysis, the estimated value of residential EV charging to the utility system, which is between 800 and a $1,000 -- $800 with -- without any management, and then over a $1,000 with managed charging. And so that's how we came to the $1,000 value for the rebate.

(Slide 14)

Moving on to the Electric School Bus program, the purpose of this program was to gather EV school bus charging data and determine the possible value of bidirectional power flow and demonstrate the capability of these buses to perform that bidirectional power flow. So bidirectional power flow is just sending power from the battery back to the building or potentially to the grid. It's a -- a pretty -- a pretty hot topic right now in the electric vehicle industry.

A lot of these buses are -- are starting to come on the market, but we don't have any

here in South Carolina yet, and we haven't demonstrated their capabilities here in South Carolina.

So we want to understand how these vehicles work and understand their duty cycles and whether or not they can be used as -- essentially as grid resources with that bidirectional power capability.

In terms of numbers, we proposed the program to incentivize 15 total buses and those are divided between DEC and DEP for ten and five. And the customer would have the responsibility to own and operate the infrastructure in this case and select the infrastructure that's appropriate for their application.

Another feature of this -- of this program is that we would retain the -- the right to own the battery at the end of the useful life of the bus. And, so, we understand that there's the potential for the buses or for the batteries to have useful life after the buses have been taken out of service. And -- and so, in exchange for providing this incentive, we wanted to retain

some of that capability to keep the batteries, basically, as -- as potential assets after the useful life and the school bus.

(Slide 15)

Moving on to the Transit Bus program. As Mr. Jones mentioned, there are a number of transit agencies that are deploying electric buses in South Carolina right now and this program would support advanced deployment of even more buses in the state of South Carolina.

In this case, we would provide a $55,000 incentive. We've limited it to 20 buses in DEC and ten buses in DEP. And the incentive is meant to fund the installation of the infrastructure, and in exchange, the company would gather data and also determine the potential for load management capabilities of the electric transit buses being deployed.

(Slide 16)

Lastly, with the Fast Charging Program, we've proposed to install 60 stations across the state, within the DEC and DEP service territories. We have a map up here for just indicative purposes. These aren't selected

locations or anything that specific. They're just meant to show the -- the type of coverage that we intend to secure with these installations. So the goal is to make it possible for EV drivers to drive from one end of the state to another. That's not currently possible right now, and it's one of the main barriers to advanced adoption of electric vehicles from what we understand from our customers.

These would be utility owned and operated fast chargers, and we think it's important for the utility to own and operate public fast chargers, because we've seen a lot of examples across the country where there are different programs and -- and the chargers are funded by, say, a utility program or another grant program, and they're not well-maintained. They fall into disrepair, and they become stranded assets over time.

So we want to protect against that risk and operate these chargers. Our -- our goal is that they would not be the only chargers out there. We want to see other third parties and the private market -- a healthy private

market also installing chargers. But we proposed this limited investment to support market growth across the state.

We would be installing higher-powered chargers, above 100 kilowatt of capacity, which is kind of the next generation of chargers right now. And that would allow us to make sure that these chargers are used over the -- over the long term and -- and don't become obsolete quickly.

We're also proposing a fast-charge fee, so we're not proposing to just charge the cost of electricity. We understand that would undercut private operators. So we're proposing a fast-charge fee, charged to drivers, that's in line with the statewide average, which would be calculated on a quarterly basis. Any net revenue from -- from that activity, would be credited against the program. So, in that way, the -- the chargers and the users of the chargers would incrementally pay for a larger proportion of the cost of that portion of the program.

(Slide 17)

So, in summary, we just have some of the

summary numbers here from the different programs. And, again, we are looking to establish customer charging behavior, the potential for utility-managed charging on the school bus and transit bus portions. We want to demonstrate this capability, the capabilities of these transit vehicles, and also make sure this program really addresses a broad cross-section of customers. You know, we realize that not everybody is -- is driving an electric vehicle, but there are a lot of people riding buses. There are a lot of customers who have children who -- who ride school buses, and a lot of those vehicles are -- are old and -- and, you know, have higher emitting engines than these zero-emission vehicles that we can deploy within this program.

And, again, lastly, with the fast-charge stations, we're looking to provide a foundational level of infrastructure across the state of South Carolina.

(Slide 18)

So, in terms of budget, I wanted to touch quickly on the overall budget. And looking at

the -- the two service territories and the split between capital and O&M costs, overall the total budget that we proposed in our amended application was 14.5 million, and that's broken down between 9.9 for DEC and 4.7 for DEP. The majority of the capital is within the DC fast charge stations, and most of the rest of the costs are -- are classified as -- as O&M, as proposed. So it was also mentioned that we proposed a deferral accounting order for a deferral of the costs, and -- and, so, the costs would -- would be allocated to that deferral. And -- and so we're not asking for recovery in this particular proposal, but rather the deferral.

And we've listed out each individual program here to give an idea of the scale of each of these programs. So I can run through those, but we've listed out each of the costs here.

(Slide 19)

So, in summary, and -- and in, you know, to some of Mr. Jones' points, we believe the time is right in South Carolina to -- to go forward with this proposal. Our -- our goal

is to explore different methods for EV charging and -- and other potential for charging load management to increase the value of EVs to the utility system.

We also believe this supports advanced market adoption of EVs in South Carolina and the transit and school bus programs, we believe, support public agencies by deploying these EV alternatives and can reduce costs and emissions for those public agencies.

There's also another timing issue with the VW settlement and the funding available from that grant program, which is being run by the Department of Insurance. Within that program, the funds are available for a limited period of time, and so we think that the -- the school bus portion and the transit bus portions that we've proposed specifically could potentially leverage that funding and deploy more -- more vehicles than otherwise might be deployed under the existing funding opportunities.

And the last thing I would add, just in terms of the timing, and -- and the scale of the program, Mr. Jones also mentioned

scaleability. These programs are designed for scaleability, and the goal is to gather enough data to propose following programs of -- of different types after the pilot program. So we have a -- a specific time period over three years in which we would execute the pilot programs, and then we would gather data, work with our stakeholders in an ongoing process that we also proposed in the amended application, and develop future programs to ensure that we are securing those benefits that we think are possible that we outlined in the analysis from MJ Bradley.

So that's all of the information that I had. We are happy to answer questions on anything that we've presented today.

COMMISSIONER BELSER: Thank you, gentlemen. Commissioners, any questions? Commissioner Ervin.

COMMISSIONER ERVIN: Mr. Reynolds, thank you for being here today, and Mr. Jones. It's been a very informative presentation.

I'm interested -- what is -- what are the limitations on the VW settlement funds? Is there a -- is there a deadline to apply for

those funds? And is it a match or is it -- how -- how does that work?

MR. REYNOLDS: So, as I mentioned, the Department of Insurance is the beneficiary for the State of South Carolina, so they have determined the process for deploying those funds. And there was -- they, basically, separated the funds into different tranches of funding, and they -- they awarded one of those tranches this -- this past year. It was awarded to a school bus project. And so they haven't announced any future application windows or anything like that, so it's unclear right now how the remaining funds will be spent. But, overall, it's a ten-year window, starting in 2016, I believe.

MR. JONES: Commissioner Ervin, I'll just add a few things. It's a pretty flexible settlement. This was a -- this was, as you know -- was VW cheating on emissions, and, therefore, it was a court settlement entered into for the northern district of California, and then CARB, the California Air Resources Board, and Federal EPA monitor the terms of the settlement. It is ten years, as Lang

said. It's pretty flexible in terms of the state can amend its application from time to time, and we see states doing this.

Frankly, when the governor turns over, like we've seen in the 2018 elections, the -- the initial -- what we call a "beneficiary mitigation plan," a BMP, you submit it to the trust in Delaware, and then they approve it.

Some of these plans have been changed. For example, in Wisconsin, the previous governor didn't think EVs were important. Up to 15 percent of the monies can be spent on light-duty EV charging stations. Initially, Wisconsin said no. And then, after the new governor came in, they changed the application. So they can spend up to 15 percent now on light-duty charging stations.

So, it's a pretty flexible document. What we urge commissions to do, like you, and Texas is doing this right now, is try to work with your sister agencies and the governor's offices, if they're interested -- usually, the governor's office plays a strong role in this -- and -- and just try to coordinate a little bit. You know, Duke has a filing in here.

DOT wants to do this. Air quality this. Try to get people around the table. Not that it's -- it's mandatory, but you get a good flow of information and usually the -- it's -- it's the environmental agency that's responsible. Here it's the Department of Insurance. But there are a number of agencies who can get involved. So -- so I would urge you to think about that.

COMMISSIONER ERVIN: My next question is the timing, and I understand it's a three-year pilot, assuming that the Commission ultimately approved the application, what -- what's the implementation schedule?

MR. REYNOLDS: So we've been working throughout the year to set ourselves up to implement quickly if there is an approval. So we would be implementing very quickly.

COMMISSIONER ERVIN: This coming year?

MR. REYNOLDS: Yes. Yeah.

COMMISSIONER ERVIN: Is the -- is the -- is this set for hearing soon, already? Do you know?

MR. REYNOLDS: Not to my knowledge.

COMMISSIONER ERVIN: All right. And then the

next question would be: The -- the charging stations piece, would you reach out to various retail establishments to -- to try to -- to have a network or how would that -- how would siting be determined?

MR. REYNOLDS: Yes. We would look to partner with -- with third parties with -- they would have to be a customer of -- of one of the companies, and those could be retail operators. They could be state -- state agencies, potentially, if they have publicly accessible land close to highway corridors. That's the main qualification that we're looking for is: highway corridor access, 24-7 access for the public, and then also other amenities like -- like restrooms and food and things like that.

COMMISSIONER ERVIN: Thank you.

MR. JONES: Sir, if I could -- Commissioner Ervin, if I could just add something there. It's important to think of this in -- in three buckets: the utility bucket, the host-site bucket, and then the EV network operator bucker. So, Lang is right, parking lots, cinemas, retail operations play a big role.

But the other big player are EV infrastructure providers like Charge Point, Green Lots, EV Connect; there are scores of these. So they have to provide the infrastructure, and, more importantly, as I said in my statement on interoperability, right now they are not entirely interoperable. They all have their RFID cards. And, so, it's important, I think, for the Commission to recognize that these operators need to involved, too. Now, Duke could co-brand with -- if they own and operate, they could invite one of these EV infrastructure providers to both qualify the hardware and the software. So they would operate the network shared with Duke. Or another model out there -- Duke is not proposing this -- but in -- in candor, some of these models are what we call "make ready" with the rebate and then the utility doesn't have to get involved in network management issues.

So there are a number of ways they can do it. The -- but -- but the important thing is: Keep your focus on the consumer, I would urge you to do. Because the consumer -- the EV

owner, at the end of the day, has to drive the vehicle, charge the vehicle, and then pay the bill. So . . .

COMMISSIONER ERVIN: How long does it take a fast-charging station to -- to recharge a vehicle?

MR. REYNOLDS: It's pretty variable, depending on the -- the car, actually. So there's -- there's different technologies with the different cars. But, right now, on average, we see about a 30-minute stop for our customers that are using a fast charger.

COMMISSIONER ERVIN: What's the useful life of the -- the unit that you're proposing be installed in South Carolina?

MR. REYNOLDS: I believe we proposed a ten-year useful life.

COMMISSIONER ERVIN: Thank you.

COMMISSIONER BELSER: Commissioner Hamilton.

COMMISSIONER HAMILTON: Thank you, Ms. Chairman.

Phil, it's always good to see you, sir. Seems like you're doing well.

MR. JONES: Good to be here.

COMMISSIONER HAMILTON: Good -- good to have

you. Mr. Lang, you also.

What is a penetration of the number of vehicles registered in South Carolina today -- electric vehicles? Do you have any idea?

MR. REYNOLDS: Yeah. According to our latest data, it's about 4500, just under 5,000, somewhere in that range.

COMMISSIONER HAMILTON: And most of these are storage -- they do their own charging at home or . . .

MR. REYNOLDS: Yeah. Most of the data, on average, we've seen about 80 percent of charging takes place at home -- at home.

COMMISSIONER HAMILTON: Okay. And -- and do you already have some charging stations within your territory that's operable?

MR. REYNOLDS: In terms of fast charging --

COMMISSIONER HAMILTON: Yeah.

MR. REYNOLDS: -- or third -- party -- yes. There are Level 2 and fast chargers.

COMMISSIONER HAMILTON: Okay. And this is -- we're in the early steps getting ready to get started, I think. Like Phil said, we may be a little bit behind. And . . .

MR. JONES: Well, I -- I didn't mean that in a

critical way, Commissioner Hamilton.

COMMISSIONER HAMILTON: No. I'm sure you didn't.

MR. JONES: But I just think that -- you know, I live in the state of Washington, and when Boeing moved one of its plants from Washington State down here, I had some conversations with you-all, and there was a big competitive spirit --

COMMISSIONER HAMILTON: We -- we kind of remember that.

MR. JONES: -- between the two states. And -- and so my only point is that I think you have a very strong automotive industry here -- supply chain, and there are going to be batteries; there's going to be whole range of components that go into these vehicles, so that was my only admonition was to -- when companies look at states, they don't just look to the governor. They just don't look at the incentives, like in California. We all know California has a lot of incentives.

COMMISSIONER HAMILTON: Yeah.

MR. JONES: What they're looking at is: What is the regulatory and policy climate? So they

include you, the environmental agency, and all sorts of state agencies. So if you were to act, I think that would be a positive to -- because this is a global industry. You know, Volkswagen, all sorts of people. So, yeah. I -- I -- I urge you to take this seriously. I am a little passionate about this, Commissioner Hamilton --

COMMISSIONER HAMILTON: I understand.

MR. JONES: -- but I really believe that this is the biggest thing to hit the electric power industry since the advent of air conditioning way back in the 1950s and '60s.

COMMISSIONER HAMILTON: Thank you. Thank you very much. Thank you, Madam Chairman.

COMMISSIONER BELSER: Thank you, Commissioner Hamilton. Commissioner Whitfield?

COMMISSIONER WHITFIELD: Thank you, Commissioner Belser.

Phil -- excuse me, Commissioner Jones, good to have you with us. And, Mr. Reynolds, good to have you. Thank you for the presentation.

Commissioner Jones, I would -- in talking

about the policy issues you brought up, you certainly -- I think even Mr. Reynolds had it on the -- the board, you certainly looked like you went about it the right way involving the stakeholders and ORS. And just -- with the exchange you had with Commissioner Ervin, in South Carolina, we -- the Commission can't really be involved in setting policy. Now, there is an energy office, of course, within -- underneath the Office of Regulatory Staff, which I'm sure you've probably worked with, and they -- they put out plans -- energy plans and policy and that sort of thing. And they work with the governor's office, and we certainly -- if they want to bring a -- an allowable ex parte where typically ORS is the neutral, we certainly are ready and willing to -- to hear. But my question to you along those regards -- it sounds like you really did start at the right place here in South Carolina, but just to -- just to follow up: Have you -- and we certainly have the authority to do pilot projects -- the Commission has the authority to approve pilot projects, but have you been to the legislature

where policy is set and laws are made and -- and that sort of thing? Because we -- we have been kindly noticed that that's not in our job description, so I just --

MR. JONES: Right.

COMMISSIONER WHITFIELD: -- would ask you: Have you been down that path? And I'm not talking about just for that pilot project. I'm talking -- you -- you asked us to think --

MR. JONES: Sure.

COMMISSIONER WHITFIELD: -- longer term, and you asked us to think on a aggregate scale, so I would just ask you: Have you -- have you been down that path?

MR. JONES: Commissioner Whitfield, the simple answer is no. And the reason is, unless asked -- unless asked specifically by a legislative committee or a member -- or one of my members in the state to help out, I -- I tend -- the alliance tends not to get involved in the legislative issues. Number 2, I am very sensitive to what this commission has been through. It started when I was president of NARUC.

COMMISSIONER WHITFIELD: Yes, sir.

MR. JONES: I'm very sensitive to all the issues with VC Summer and everything that you're going through, so I would never ever walk over to the state capital and make a -- an argument. What I will do is respond to questions and work with stakeholders that want to do something.

And just let me say that, of those states I mentioned -- Maryland Michigan, Oregon -- I mentioned a few -- about half had a legislative mandate --

COMMISSIONER WHITFIELD: Uh-huh.

MR. JONES: -- where the legislature passed a bill to tell them to entertain a utility proposal and to move forward with transportation electrification, but about half didn't. So Maryland -- in particular, Maryland and Michigan acted on their own authority. So what is your authority? Your authority is to set just and reasonable rates.

COMMISSIONER WHITFIELD: Yes, sir.

MR. JONES: Your authority is to regulate in the public interest. Your authority is to make sure you do the balancing of -- of -- of the regulated utility and the consumers. So I

think, if you look at the Duke proposal and other proposals, that is squarely within your jurisdiction at the pilot stage. Maybe when it gets to be bigger you need a little more nudge or direction from the legislature. For example, Commissioner Lipshultz --

COMMISSIONER WHITFIELD: Uh-huh.

MR. JONES: -- in Minnesota has been very active. They're being -- and he thinks maybe for the next phase, going beyond pilot programs, a little legislative direction might be helpful. But, for this level of pilot programs, when you're kind of testing out rate designs, rebates, and things, it's -- I would argue that it's within -- squarely within your jurisdiction.

COMMISSIONER WHITFIELD: Yes, sir. We -- as I said, we certainly have the authority to approve pilot projects here and have done so in the past, and -- and we can also promulgate regulations here, too. But I just wanted to -- to thank you for sharing where you started and -- with ORS and the stakeholders. And, as Mr. Nelson stated in his opening remarks, he's the designee of the executive director. Well,

you've got the executive director here in the room and a couple of other -- at least two other folks I see from ORS in here, so you -- you've certainly got resources here to talk with. And obviously you've worked with them in the past from what you're reporting today, and I just wanted to kind of share that with you. As -- as Commissioner Hamilton joked with you about us being a little behind, this -- this Commission is certainly willing and -- and ready to hear what comes before it and -- and be -- be proactive as -- to the extent we can. We're somewhat a reactive body, but to the extent the law allows us, we're certainly willing to timely hear any of these -- these issues and -- and any of these matters.

I wanted to ask you a couple of technical questions real quick and that'll --

MR. JONES: Sure.

COMMISSIONER WHITFIELD: -- that'll wrap it up. And this is either for you or Mr. Reynolds, either one. You had a graph that showed how the price has decreased in the batteries, and it was a pretty -- pretty -- pretty good graph there showing how it was --

MR. REYNOLDS: That one there?
COMMISSIONER WHITFIELD: -- steady decline -- yes, sir.
(Slide 6)
COMMISSIONER WHITFIELD: And -- and talk to me -- I'm not quite the policy wonk that Commissioner Jones is, so talk to me a little bit about -- and Commissioner Hamilton knows that, too, right, Commissioner Jones? And talk to me a little bit about the size of the batteries as the price decreases.
MR. REYNOLDS: Sure.
COMMISSIONER WHITFIELD: Talk to me a little bit about the size -- the physical size and some of the technical --
MR. JONES: Sure.
COMMISSIONER WHITFIELD: -- attributes of the batteries.
MR. JONES: Do you want to -- I'll -- I'll start and let Lang finish. But, generally with a plug-in -- what we call a "plug-in EV," the battery size is about seven -- anywhere from 15 to 20 kilowatt-hours; 15 to 20 kilowatt-hours, you usually charge that with a Level 2 charger. When you get into the full-

battery electrics like Tesla, the Audi e-Tron, the Ford -- remember that Mustang that we showed you? -- you're talking about a battery in the range of 70 to 95 kilowatt-hours. It's a much, much bigger battery. So it -- it -- it's heavier; it's more expensive, and it takes longer to recharge. And so those bigger batteries probably are better suited for a DC fast charger, as Lang said, 30 minutes at a -- at 100-kilowatt DC fast charger.

For the plug-in EVs, you could probably get by, like -- like I have a plug-in EV now -- a "Honda Clarity," it's called -- 17 1/2-kilowatt-hour battery; I can charge that in 2 1/2 hours with a Level 2 charger. I cannot use a DC fast charger on that battery because it's not capable of a DC fast charge.

I mean did I get that about right, Lang?

MR. REYNOLDS: Yeah. And I would --

MR. JONES: Batteries are getting bigger?

MR. REYNOLDS: Yeah. I would just add -- so in -- in just relatable terms, if you look at the Nissan Leaf, it came out in 2011; the first range I think was 80 or 90 miles, somewhere around there. So every two years,

the battery has gotten bigger. In terms of kilowatt-hour capacity, it went from 80 miles to 97 to 115 to 150 to, right now, it's at 220 miles of range for their entry-level vehicle. So that's -- every two years, it's gotten about 20 percent better, and the cost keeps coming down. So that's kind of a real-world example of how that translates into the capabilities of the car.

COMMISSIONER WHITFIELD: And how about the physical size as those -- as that mileage increases?

MR. REYNOLDS: They've actually -- so, in the case of Nissan, the battery is actually a pretty similar size. It's -- it has gotten bigger, but the -- the energy density of the batteries is increasing, as well.

COMMISSIONER WHITFIELD: -- increasing, as well?

MR. REYNOLDS: Yeah.

MR. JONES: So, Commissioner Whitfield, just one other point from the battery size: The reason this is coming down -- and, actually, the number that -- right now is $165 a kilowatt-hour; we predict that it would be at

$110 to $100 in three years. The reason that is happening is Tesla, the Chinese, Volkswagen. They are building these huge, what we call "gigafactories," so that's my point about scale. As the industry scales up, the unit costs are going to come down, right? Because you're getting bigger scale, so you measure those by gigawatt-hours. So for example, Volkswagen just announced a -- a plant in Sweden of 30 gigawatt-hours. The Chinese are building three gigawatt-hour -- 30-gigawatt-hour plants as we speak. Tesla is building outside of Berlin, Germany, a 30-gigawatt-hour battery factory. So -- so that's how you measure it from a battery standpoint, and that's why that graph on the left keeps coming down.

COMMISSIONER WHITFIELD: It's coming down?

MR. JONES: Yeah.

COMMISSIONER WHITFIELD: Mr. Reynolds, I guess I'm going to direct this one at you. And we're talking about in the pilot -- we're talking about the costs of -- of infrastructure, the charging stations, all that. What about -- and I know we're mostly

-- a lot of what you had up there have been buses and commercial vehicles of some type, but what about the infrastructure? Does that encompass the infrastructure upgrades to your system where you've got, I guess, a -- maybe not a fair comparison, but I'm going back to a residential neighborhood where you've got a -- a whole neighborhood wanting to plug in at one time and, you know, the necessary upgrades that you might need for transformers and the distribution system of your -- of Duke's system to handle that or -- talk to me about that just a little bit.

MR. REYNOLDS: Sure. So in the DC fast charge program specifically -- so -- so those costs that we've forecast for the budget include the upgrades for those installations. So if we're putting in, say, two 100 kW chargers and we need to do some kind of a transformer upgrade at that location, you know, that budget does include those costs.

In -- in the case of the residential neighborhood, I would say that we -- we do not see situations right now where we're getting, saying, ten EVs in one neighborhood and we

have to do a -- a transformer upgrade. So that's -- I wouldn't say that's contemplated in this particular pilot.

COMMISSIONER WHITFIELD: So that -- you're saying it's not contemplated in this particular pilot?

MR. REYNOLDS: Right. The residential rebate is -- is just a -- a rebate to the participating customers, and so it -- it doesn't take into account any system upgrades.

(Slide 13)

COMMISSIONER WHITFIELD: Okay. And -- and, lastly, Commissioner Jones, I guess if I'd sat in enough of the panels at NARUC, I would -- I would know this but, talk to me, either one of you, about the term you use, "managed charging." We talking about utility-managed charging versus customer or ratepayer? Talk to me about that term a little bit.

MR. JONES: "Managed charging" is a -- is a broad term. Just think of it in three areas. The auto OEM: the vehicle itself can manage charge, meaning what you're trying to do is move the load off peak. Just think of it as --

COMMISSIONER WHITFIELD: Right, right. Sure.
MR. JONES: Because if this -- if we --
COMMISSIONER WHITFIELD: Nighttime.
MR. JONES: If we mess this up, frankly, we -- we are all going to be guilty in the future, but the worst thing that could happen with this transformation is for all of this load to move on peak, let's say, between 5 p.m. and 9 p.m. --
COMMISSIONER WHITFIELD: Nine p.m. Sure.
MR. JONES: -- when people come home, right? You don't want that to happen.
COMMISSIONER WHITFIELD: Now, that I did hear at NARUC.
MR. JONES: So managed charging could be accomplished by the vehicle itself by setting a timer in the car, which you have. It could be accomplished by the EV infrastructure firm like Greenlots or EV connector ChargePoint. They all have timers in them. Or it could be -- it could be accomplished by the utility.
The utility can do it in two ways. They could do it based on technology from the grid: send signals and control this, as they do with demand response. Just think of it like a

demand response program.
COMMISSIONER WHITFIELD: Demand response. Gotcha.
MR. JONES: And the other is rate design. So you have to think of rate design as a -- as a managed charging option, right? So if you have very cheap rates -- Duke is not proposing this, so maybe I shouldn't be talking about it. But I'm kind of the national witness on this, so -- so I'm going to give you what other utilities are doing, as well. But you can -- like Georgia Power and some others have some super off-peak rates and they have high on-peak rates, and so you can come up with rate design or just diminish the demand charge over time. If -- if you're concerned about the coincident peak, based on your CP studies, going up at certain times, you -- you -- you fiddle -- adjust the demand charge. Again, something totally within your jurisdiction as the Commission. So -- so rate design is part of managed charging, as well.
MR. REYNOLDS: Yeah. That's a good summary of the different options. There are a lot of different options for managed charging and,

again, the point is -- is to integrate the load in a way that's beneficial for the system rather than detrimental.

I would just add that, in our program, what we proposed is specifically a utility-managed charging regime. So we would directly manage the load similar to a demand response event.

COMMISSIONER WHITFIELD: Right. And then --

MR. REYNOLDS: Sorry. One more thing to add on that is that the first year is a baseline data-gathering period, so we need to first understand how our customers are charging. The data that we have right now is about seven years old. It's from the Charge Carolina study back in 2012, so it's very outdated and we need to gather a new baseline of data and understand what that looks like before we can move forward with these potential other methods.

COMMISSIONER WHITFIELD: Well, thank you for that. That's good information, good explanation. We -- we used to not have a winter peak here either, but now we do have a winter peak down here, Commissioner Jones. So

thanks to both of you for your presentation and appreciate you being here today. That's all I have, Commissioner Belser.

COMMISSIONER BELSER: Thank you, Commissioner Whitfield. Thank you both for your presentation today. We certainly appreciate you sharing this information with us.

Mr. Wellborn, is there anything else from you -- from the company?

MR. WELLBORN: No, Commissioner.

COMMISSIONER BELSER: Mr. Nelson, anything else?

MR. NELSON: No, Commissioner.

COMMISSIONER BELSER: Okay. Thank you again. I do remind everyone in attendance to please be sure and turn in your forms at the back of the room, and -- and, again, thank you for being with us today. This -- this -- if there is nothing further, then this meeting is adjourned. Thank you.

(WHEREUPON, at 3:05 p.m. the proceedings in the above-entitled matter were adjourned.)

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that I was then and there a notary public in and for the State of South Carolina-at-large and that by virtue thereof I was duly authorized to administer an oath;

that the deponent/witness was first duly sworn to testify to the truth, the whole truth, and nothing but the truth, concerning the matter in the controversy aforesaid;

that the foregoing transcript represents a true, accurate, and complete transcription of the testimony so given at the time and place aforesaid to the best of my skill and ability;

that I am neither a relative nor an employee of any of the parties hereto, nor of any attorney or counsel employed by the parties hereto, nor interested in the outcome of this action;

that, if a recording of an event was supplied by another party for purposes of transcription and I was not present during that event, the foregoing pages were transcribed to the best of my skill and ability; additionally, any identifications of speakers were provided to me by the party supplying the recording;

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In witness thereof, I have hereunto affixed my signature and title.

Julie Taradash

Julie Taradash

Date: 12/13/2019

Notary public for South Carolina.
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